



Amendment Report

Licence Number	L8358/2009/2
Licence Holder	Echo Resources Limited
ACN	135 597 634
File Number:	DER2015/001858
Premises	Bronzewing Gold Mine 106 Mt McClure Road Legal description – Mining tenements M36/146, M36/200, M36/263 and M36/295
Date of Report	28 October 2019

1. Definitions and interpretation

Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Report	refers to this document
AS 4156.6 – 2000	Australian Standard AS 4156.6 – 2000: Determination of Dust/moisture Relationship for Coal.
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>

Term	Definition
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence
m ³	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
mtpa	million tonnes per annum
NEPM	National Environmental Protection Measure
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
µg/L	micrograms per litre

2. Amendment Description

The following guidance statements have informed the assessment and decision outlined in this Amendment Report:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

2.1. Purpose and scope of assessment

A licence amendment application was received from the applicant on 8 May 2019. The Licence Holder is proposing the following changes:

- An increase in throughput for Category 73 from 1,000 m³ to 1,600 m³ (in aggregate); and
- To reduce the requirement of condition 7 for continuous cyanide monitoring to daily sampling.

The increase in throughput amount is not due to a change in actual volume of storage, but due to an incorrect calculation in the licence. The correct storage amount should be 1,600 m³. No further risk assessment is required for this change.

The Licence Holder has applied to amend the continuous cyanide monitoring and has provided the following reasons:

- Cyanide analyser machines are notoriously problematic and require regular maintenance to ensure solution is clean, filter is intact and calibration correct. On a normal process plant operation, the operator would check their manual reading against the cyanide analyser every two hours to check for drift. This will not be practical if located at the TSF.
- A cyanide analyser machine on a process plant is normally located in a protective hut enclosed above the slurry/solution tank. It used a small draw pump to pull filtered solution into the titration cell for analysis at regular intervals. Drawing from the TSF supernatant will be extremely difficult, if not impossible to facilitate in practically.
- Should the analyser be absolutely necessary, it would need to be located at the process plant to sample the decant water stream pumped back to the dam. This stream is not constant as previously stated.
- The process is monitored continuously and discharge tailings lines are sampled every two hours.

The Licence Holder has proposed that the most suitable method to obtain regular and reliable sampling of the cyanide content in the decant supernatant pond would be to take a manual water sample once per shift. This could be obtained by starting the decant pump (if it's not already running) and having a sample point with a valve at the generator close to the pit. This sample would be the most representative of the solution composition of the decant supernatant at that point in time.

The amendment has been risk assessed in section 5 of this report.

The Licence Holder has also confirmed that the use of flotation balls within the pond to deter

wildlife will not be practical and will not be used as a management tool to prevent cyanide impacts on wildlife. .

3. Amendment history

Table 2 provides the amendment history for L8358/2009/2.

Table 2: Licence amendments

Instrument	Issued	Amendment
L8358/2009/1	25/03/2010	Licence amendment to include new tenements relating to W4647 (mine dewatering from Success Pit to Parmelia Pit)
L835/2009/1/2	16/10/2014	Licence renewal. Updated to the current licence format and conditions changed to reflect the non-operational status. Issued to Metaliko Resources.
L835/2009/1/2	16/06/2016	Licence amendment to update conditions to ensure accurate and adequacy in relation to on-site activities.
L835/2009/1/2	13/02/2019	Licence amendment and review to ensure assessment is current as operations recommence.
L835/2009/1/2	28/10/2019	Licence amendment to correct storage amount for category 73 and to change continuous WAD-CN monitoring in the in-it TSF to manual monitoring per shift.

4. Location and receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 3: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Barwidgee Station	40 km from the premises

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Important and/or Ramsar wetlands	There are no listed important wetlands or Ramsar wetlands within the vicinity of the premises. The nearest important wetland is more than 200 km away and the nearest Ramsar wetland is more than 500 km away.
Parks and Wildlife Managed Lands and Waters	The closest DBCA managed land is the Wanjarri Nature Reserve, listed as a Class A Nature Reserve and located approximately 6.5 km west of the Premises.
Threatened Ecological Communities and Priority Ecological Communities	No TECs or PECs were found within the project area during flora assessments and database searches.
Threatened/Priority flora and fauna	No threatened or priority flora or fauna was found

	within the project area.
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5. Risk assessment

Table 5 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 5: Risk assessment for proposed amendments during operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Deposition and storage of tailings in Discovery in-pit TSF	Tailings decant water contains cyanide or other toxic substances (eg arsenic, elevated levels of nitrate)	Birds or other wildlife coming into contact with or drinking the tailings decant water	The licence currently requires continuous cyanide monitoring to occur in the supernatant pond of the Discovery in-pit TSF. For reasons explained in section 2.1 of this report, the Licence Holder has requested this is amended to once per shift. Controls proposed to protect wildlife from ingesting the tailings	Major	Possible	High	Research has indicated that gold processing tailings with residual WAD-CN in solution above 50 mg/L, with salinity of less than 50,000 mg/L present a risk to wildlife health (Adams et al 2008)..	The Licence Holder has demonstrated that it is not possible for a continuous cyanide analyser to be implemented within the supernatant pond at the Discovery in-pit TSF. To amend the requirement for continual monitoring within the supernatant

			<p>decant water include manual monitoring of the decant pond per shift and wildlife inspections of the facility.</p> <p>At the time of this amendment, the Licence Holder confirmed the Premises is not yet out of care and maintenance. The maintenance staff are conducting inspections of the facility, with no reported wildlife visitations, however, there is no water currently in the TSF.</p>					<p>pond to daily manual monitoring, the following regulatory controls will be implemented on the licence (upon commencement of operation):</p> <ul style="list-style-type: none"> • Dawn and dusk wildlife inspections of the TSF; • Once per shift manual cyanide sample of decant pond (licence limit of 50 mg/L); • Maintaining size of decant pond to ensure it is kept to a minimum. <p>The Licence Holder will be required to report monthly to the department for the first six months of operation. This report must include the daily WAD-CN levels from the supernatant pond and results from the wildlife inspections. If WAD-CN levels are consistently above 50 mg/L and/or there are wildlife impacts observed, then DWER may initiate a licence amendment to</p>
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Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
								condition further regulatory controls.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

6. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a licence amendment will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

6.1. Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Licence amendments

Condition No.	Proposed amendments
Condition 3 Table 4	Additional requirement for visual monitoring of the supernatant pond for wildlife observations to be conducted at dawn and dusk every day.
Condition 7 Table 6	Changes to the monitoring requirements from continuous to manual sampling for WAD-CN in the Discovery in-pit TSF supernatant pond.
Condition 8	Requirement for Licence Holder to submit results of WAD CN monitoring along with wildlife inspection record on a monthly basis for the first six months once recommencement starts.
Schedule 2 Table 8	The Premises production or design capacity for category 73 (bulk storage of chemicals) has been corrected to 1,600 m ³ .

Tim Gentle
Manager – Resource Industries
Regulatory Services

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

	Document title	Availability
1	Adams, M.D., Donato D.B., Schulz, R.S. and Smith, G.B., (2008) Influences of Hypersaline Tailings on Wildlife Cyanide Toxicosis; MRIWA Project M398 (II) 'Cyanide Ecotoxicity at Hypersaline Gold Operations' Final Report Volume 2 – Definitive Investigations, 26 August 2008	accessed at: http://www.mriwa.gov.au/publications/previous-project-reports/
2	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
3	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	
4	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	
5	DWER June 2019. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	
6	Echo Resources Limited (2019), Licence Amendment Application, May 2019	

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Report on 26 August 2019 for review and comment. No comments were submitted on the draft Amendment Report.